

## Rockville biotech's future is in the bag

### Culture-making technique keeps MacroGenics' costs down

Friday, Oct. 21, 2005

by Steve Berberich  
Staff Writer

MacroGenics Inc.'s innovative manufacturing facility, less than a week old, has already cranked out, or more properly "waved out," its first run of product, a bio-engineered protein.

An enthusiastic audience of state and local officials celebrated the startup's new Rockville plant Monday evening. Company officials said their modest 4,500-square-foot facility on Shady Grove Road is designed to meet strict federal protocols called Current Good Manufacturing Practices for developing human drugs.

The private biotech, which also added 10,000 square feet of office and warehouse space at the new site, is almost entirely funded by venture capitalists, officials said.

Many of the guests said they were impressed that MacroGenics has accomplished so much in less than five years.

In 2000, seeking an opportunity to spawn a second, leaner-generation biotech, a small group of senior scientists from established companies founded MacroGenics, said CEO Scott Koenig.

Attending the opening were Sen. Jennie M. Forehand (D-Dist. 17) of Rockville, Del. Kumar P. Barve (D-Dist. 17) of Gaithersburg and David Edgerley, director of the Montgomery County Department of Economic Development.

"This is indeed a very special day," Forehand said. "MacroGenics, as a new part of DNA alley here, is helping make Montgomery County the biotechnology center of the whole nation."

"This is great news that a biotech company has actually reached the point of [Good Manufacturing Practices] in such a short time," said bioscience communications consultant Mary Sundeen. "It shows investors that these folks will produce products in the market."

Current Good Manufacturing Practices are standards approved by the U.S. Food and Drug Administration. The FDA requires detailed cGMP before a laboratory can make, process and package drugs or vaccines to be ingested or injected into humans.

One reason for MacroGenics' rapid maturity is that it cultures trillions of drug-producing cells in disposable plastic bags instead of using costly stainless steel vats, said Val Ciccarone, the company's associate director of gene expression. The bags, up to 500 liters, are filled half way with mammalian cell cultures suspended in liquid nutrients and lying in coffin-shaped chassis that shake the bags gently. The resulting wave action, which keeps the cells moving, is a technology developed by Wave Biotech LLC of Somerset, N.J.

Conventional steel bioprocessing vats used by many biotechs, Ciccarone said, are as large as 20,000 liters and must be immaculately sterilized after each batch of culture.

MacroGenics has six experimental products in its research and development pipeline. The lead product is a monoclonal antibody for treatment of autoimmune diseases. In July, Koenig said, the company "in-licensed" a drug candidate for juvenile diabetes, CD3, from Tolerance Therapeutics Inc. and developed by scientist Jeffrey Bluestone

of the University of California, San Francisco. Koenig said the compound has been also tested preliminarily on a number of autoimmune disorders including rheumatoid arthritis, plus diabetes.

Other compounds under study may become therapeutics for cancers, allergies and lupus, or vaccines under development for HIV/AIDS and West Nile virus.

Edgerley reminisced about first visiting MedImmune Inc. in 1990; the Gaithersburg company is now Maryland's most successful biotech.

“At MacroGenics, you are at the same stage they were then, and you are bigger than they were at this point in their history,” Edgerley said. “I commend you for that.”

Koenig said MacroGenics, which has 65 employees, was founded on “a very simple notion to identify small changes in monoclonal antibodies that we can market to disrupt cancer, other diseases. We quickly identified a number of promising possibilities and soon found ourselves at the crossroads to manufacture.”

He explained that company officials considered three options.

First, they could find partner companies for manufacturing, and perhaps risk losing some of the economic value of their products in the process.

Second, they could slowly develop one product at a time.

Or third, the road they chose, they could “go with the wave technology” of producing DNA-recombinant products in the disposable bags. That was the most appealing route to investors, Koenig said.

Koenig said he worked for MedImmune for 11 years before joining MacroGenics as CEO in September 2001. The company was initially financed that fall, when the U.S. economy slumped. “I could see that it would be much more difficult to raise capital, but we did,” he said.

MacroGenics shows that business models for biotechnology companies are constantly evolving, he said.

“In 1990, biotechs were able to get support by the public at a very early stage with a technology concept or platform, around a deal or by results of an early clinical trial,” he said. “The investment community is now a lot more wary.”

Another key player at MacroGenics is Michael J. Kadan, director of its manufacturing facility.

“As Scott mentioned, it is a very expensive endeavor,” Kadan said. “But the degree of control that you gain committing those resources and the degree to which you can fast-track to the clinic, which is what makes the value of your technology, is worth the risk.”

MacroGenics officials understand that product development is what makes a company successful, he said.

“You have to have a product vision, as opposed to a technology platform that many biotech companies stumble upon,” Kadan said.

The company is funded by more than a dozen investors, including venture firms Alta Partners, MPM Capital, GPG Ventures and InterWest Partners, said COO Michael S. Richman.

Richman, formerly with MedImmune and Chiron Corp. of Emeryville, Calif., said MacroGenics has stuck with its vision.

“We hired Val Ciccarone as one of the first employees because we were looking toward developing cell lines and production systems downstream,” Richman said. “At this stage you don’t see companies getting into manufacturing. Some companies outsource the manufacturing because if the company goes bad, what do you do with this? In a good financial analysis, though, I think it pays for itself rather than outsourcing.” Ciccarone was formerly with Life Technologies Inc. of Rockville.

Kathryn E. Stein, vice president of product development and regulatory affairs, joined the company after 22 years at the FDA and 11 years as director of the agency’s monoclonal antibody division.

“It has been a great ride since we set up this facility,” Stein said. “We are making product now and we are doing it disposably.”

MacroGenics, with headquarters on Gude Drive in Rockville, signed the lease on the manufacturing facility on Shady Grove Road last December.

The company founders are Jeffrey V. Ravetch of Rockefeller University in New York; and Leroy Hood, Alan Aderem and Ruedi Aebersold, all with the Institute for Systems Biology in Seattle.

Copyright © 2005 The Gazette - ALL RIGHTS RESERVED. [Privacy Statement](#)